

Notice of Allowability

Application No.

09/885,375

Examiner

Jacob Meek

Applicant(s)

HE, SHOUSHENG

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed on 12/15/05.
2. ☒ The allowed claim(s) is/are 1,3,5, 8 - 10.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 5, filed 12/15/05, with respect to 112, 1st paragraph rejection of claim 1 have been fully considered and are persuasive. The 112, 1st paragraph rejection of claim 1 has been withdrawn in view of amended claim.
2. Applicant's arguments, see page 6, filed 12/15/05, with respect to 112, 2nd paragraph rejection of claim 1 have been fully considered and are persuasive. The 112, 2nd paragraph rejection of claim 1 has been withdrawn in view of amended claim.
3. Applicant's arguments, see page 6, filed 12/15/05, with respect to 112, 2nd paragraph rejection of claim 8 have been fully considered and are persuasive. The 112, 2nd paragraph rejection of claim 8 has been withdrawn in view of amended claim.
4. Applicant's arguments, see page 6, filed 12/15/05, with respect to 102 (e) paragraph rejection of claim 8 have been fully considered and are persuasive. The 102 (e) paragraph rejection of claim 8 has been withdrawn in view of amended claim.

EXAMINER'S AMENDMENT

5. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
6. Authorization for this examiner's amendment was given in a telephone interview with Steven Smith (Reg.# 36,684) on 3/2/06.

7. The application has been amended as follows:

Claim 8.

8. A method for estimating a transmission channel in a digital communications system which operates in accordance with GSM specifications, said communications system including a receiver having a channel estimation-based equalizer, said method comprising:

receiving in the receiver, a signal transmitted over the transmission channel, said received signal including a 26-symbol training sequence;

adapting a window size of the equalizer to an actual delay spread of the transmission channel;

using in the equalizer an estimate of the transmission channel for synchronizing and correcting the received signal; and

estimating without matrix inversion, the transmission channel for different channel spans m , where $1 \leq m \leq 8$, using at different synchronization points, the last $m+15$ consecutive symbols of the 26-symbol training sequence except for a group of symbols comprising the last four or fewer symbols.

8. The following is an examiner's statement of reasons for allowance:

While the use of training sequences is well known in the art, applicant's claimed invention utilizing an offset from center and variable length training sequence according to channel characteristics, along with the specifics associated with this operation, does not appear to be anticipated or rendered obvious by prior art.

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9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

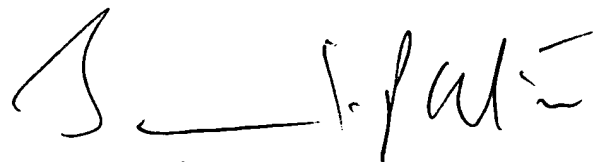
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Meek whose telephone number is (571)272-3013. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571)272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMM
3/1/06



JAY K. PATEL
SUPERVISORY PATENT EXAMINER

ERICSSON **FAX****ERICSSON INC.
LEGAL DEPARTMENT**6300 Legacy Drive
Plano, Texas 75024

Date:

Number of pages (including cover sheet):

3

MESSAGE TO:	COMPANY:	FAX #:
JACOB MEEK	USPTO	571-273-3013

FROM:	PHONE:	FAX #:
STEVEN W. SMITH	972-583-1572	972-583-7864

REMARKS:	Urgent	For your review	Reply ASAP	Please comment
MESSAGE: AMENDED CLAIM 8 09/885,375				

CONFIDENTIALITY NOTE:

THE INFORMATION IN THIS FACSIMILE MESSAGE ("FAX") IS BEING SENT BY AN ATTORNEY, OR HIS/HER AGENT, AND IS INTENDED TO BE CONFIDENTIAL AND ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY NAMED ABOVE. THE INFORMATION MAY BE PROTECTED BY ATTORNEY/CLIENT PRIVILEGE, WORK PRODUCT IMMUNITY OR OTHER LEGAL RULES. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT, YOU ARE NOTIFIED THAT RETENTION, DISSEMINATION, DISTRIBUTION OR COPYING OF THIS FAX IS STRICTLY PROHIBITED. IF YOU RECEIVE THIS FAX IN ERROR, PLEASE NOTIFY

Attorney Docket No. P13536-US
Customer Number 27045

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Shousheng He	§	Group Art Unit:	2637
Serial No:	09/885,375	§	Examiner:	Jacob M. Meek
Filed:	June 19, 2001	§	Confirmation No.:	3992
		§		
		§		
		§		

For: EFFICIENT CHANNEL ESTIMATION IN A
DIGITAL COMMUNICATIONS SYSTEM

Via Fax 1-571-273-3013

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the U.S. Patent and Trademark Office, P. O. Box 1450, Alexandria, VA 22313-1450, or being facsimile transmitted or being transmitted via EFS-Web (Beta) to the USPTO on the date indicated below.

Date: February 28, 2006

Pamela S. Newton

SUGGESTED AMENDMENTS TO CLAIM 8

As per the telephone conference between Examiner Meek and Applicant's attorney, Steven W. Smith, suggested amendments to claim 8 are attached on page 2.

Amendment - PAGE 1 of 2
EUS/JJP/05-9273

Attorney Docket No. P13536-US
Customer Number 27045

8. (Currently Amended) A method ~~for~~ of estimating a transmission channel in a digital communications system which operates in accordance with GSM specifications, said communications system including a receiver ~~which receives a signal transmitted over the transmission channel, said receiver including~~ having a channel estimation-based equalizer, said method comprising:

receiving in the receiver, a signal transmitted over the transmission channel, said received signal including a 26-symbol training sequence;

equalizer having adapting a window size ~~adapted of the equalizer to the an~~ actual delay spread of the transmission channel, ~~and said equalizer;~~

using in the equalizer, an estimate of the transmission channel for synchronizing and correcting said the received signal, said received signal including a 26-symbol training sequence, said method comprising; and

estimating without matrix inversion, the transmission channel for different channel spans m , where $1 \leq m \leq 8$, using at different synchronization points, the last $m+15$ consecutive symbols of the 26-symbol training sequence except for a group of symbols comprising the last four or fewer symbols.